Date: Mon, 11 Apr 94 04:30:02 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V94 #402
To: Info-Hams

Info-Hams Digest Mon, 11 Apr 94 Volume 94 : Issue 402

Today's Topics:

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Sun, 10 Apr 1994 13:33:33 GMT
From: agate!usenet.ins.cwru.edu!eff!news.kei.com!yeshua.marcam.com!
zip.eecs.umich.edu!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!cyber2.cyberstore.ca!
nwnexus!krel.iea.com!connected@ihnp4.ucsd.edu
Subject: baud and Byte/s
To: info-hams@ucsd.edu

In article <2o3tcm$62p@sophia.inria.fr> jmhertz@zig.inria.fr
(Jan-Martin Hertzsch) writes:

>I'm not a "packeteer", so excuse my lack of knowledge:
>Which relation exists between the units mentioned above?
>Is there a factor saying how many Byte/s make one baud

>or vice versa?

First off, instead of bytes per second, it's better to refer to characters per second (cps). The reason for this is simple: a byte is 8 bits, period, but a character is not always 8 bits (e.g., between a modem and a computer on a serial link, a character is 8 data bits plus 1 start bit and 1 stop bit, or 10 bits ... but between two error correcting modems, that same character is only 8 bits).

The following is one of my ``standard replies'' for comp.dcom.modems when this topic comes up. Of course, baud, bps, and cps are all generic data communications terms, so the explanation works here, too.....

---------- CUT HERE ----------
Baud refers to the symbol rate on the line. In other words, the rate at which the levels, frequencies, etc., are changing. V.32bis operates at 2400 baud, meaning that 2400 times/second, the signal on the line changes state. This does not, however, tell you what the actual link speed is.

The link speed, measured in bits/second (bps), is a combination of the baud rate and the number of bits/symbol. For example, V.32bis, when operating at 14,400 bps, transmits 6 bits in each state change on the line. Thus, while it is only operating at 2400 baud, it is running at 14,400 bps.

Let's break things down a bit more..... We're going to use an imaginary modem for this example. This modem will use only frequency shift keying, or FSK (this is *NOT* a real-world modem....this is only to make the explanation simple). To begin with, it will switch between only two frequencies, frequency A and frequency B. Let's say that frequency A represents a logical 0 (zero), and frequency B represents a logical 1 (one).

The baud rate would be the number of times per second the signal changes (e.g., from A to B, B to A, A to A, or B to B) per second. Because there are only two possible values here, the bit rate happens to equal the baud rate, and if the modem is operating at 1200 baud, it is also operating at 1200 bps.

Now let's make our hypothetical modem a little more complex. Instead of operating between only two frequencies, let's make it four (A, B, C, and D). The symbol values would then look something like this:

A = 00
B = 01
C = 10
D = 11

In this case, there are two bits of data transmitted for each symbol change. Therefore, if the modem is operating at 1200 baud, it is operating at

2400 bps.
--------------------------- CUT HERE ---------------------------

Does that make sense?

Later,
   --jim

--
73 DE N5IAL (/4)   < Running Linux *1.00*! >
      jim@n5ial.mythical.com   ICBM: 30.23N 86.32W
  || j.graham@ieee.org   Packet: N5IAL@W4ZBB (Ft. Walton Beach, FL)
E-mail me for information about KAMterm (host mode for Kantronics TNCs).

Date: 11 Apr 1994 05:37:20 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
europa.eng.gtefsd.com!emory!news-feed-2.peachnet.edu!concert!bigblue.oit.unc.edu!
samba.oit.unc.edu!not-for-mail@network.ucsd.edu
Subject: Cushcraft R-7?? Any Good??
To: info-hams@ucsd.edu

I recently bought a used Cushcraft R-7 vertical antenna and would like to
get opinions on whether it is a good antenna or not. I would like to take
my tri-band beam down and replace it with the R-7 if it is a good antenna.
 It still looks new. I would like to side mount it on my tower but the
instruction pamphlet said not to mount near a tower, but was wondering if
anyone had tried this?

Depending on the feedback I get, I will either use it or sell it.

Please E-mail if you have experience with this antenna.

Kenneth

--

 \ The above does not represent OIT, UNC-CH, laUNChpad, or its other users. /

Date: 11 Apr 94 03:42:08 GMT
From: news-mail-gateway@ucsd.edu
Subject: Delivery Failure Report
To: info-hams@ucsd.edu

From: NAME: Mail Postmaster
     FUNC:
     TEL: <POSTMASTER AT A1 AT ANDV02>
To: net%"Info-Hams@UCSD.EDU"@RCVAX@MRGATE

    ALL-IN-1 was unable to deliver your message dated   to
      ADAMS,SE   - no such ALL-IN-1 account
    on node ANDV02

    The subject of the message was :
      Info-Hams Digest V94 #401

Date: 07 Apr 1994 16:54:58 GMT
From: ihnp4.ucsd.edu!agate!news.Brown.EDU!noc.near.net!info-server.bbn.com!
news.bbn.com!levin@network.ucsd.edu
Subject: Heinous operating techniques (AGAIN!)
To: info-hams@ucsd.edu

In article <2nuj02$jh7@oak.oakland.edu> prvalko@vela.acs.oakland.edu (prvalko)
writes:

   I have talked to many hams (besides myself) that just gave up on
   checking into "official" nets simple because of this new procedure!

Amazing how little it takes.

Date: 11 Apr 94 00:25:50
From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!zip.eecs.umich.edu!
zip.eecs.umich.edu!hideg@network.ucsd.edu
Subject: Heinous operating techniques (AGAIN!)
To: info-hams@ucsd.edu

In article <2nuj02$jh7@oak.oakland.edu> prvalko@vela.acs.oakland.edu (prvalko)
writes:

>I have talked to many hams (besides myself) that just gave up on
>checking into "official" nets simple because of this new procedure.
>
>Amazing how little it takes.

It's just a procedural thing, not a religious issue. Sheesh!

--Steve Hideg, N8HSC

Date: 10 Apr 94 16:03:00 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!vixen.cso.uiuc.edu!
news.uoregon.edu!netnews.nwnet.net!ns1.nodak.edu!news.uoknor.edu!news.ualr.edu!
chaos!paul.graziani@network.ucsd.edu
Subject: KC Tracker board
To: info-hams@ucsd.edu

    Is the Kansas City Tracker board still made? If so, from where is
    it available? Any other suggestions regarding such types of
    satellite tracking boards?
    Thanks for your help on this.

    Paul Graziani WD5BIV

    paul.graziani@chaos.lrk.ar.us

___ Blue Wave/QWK v2.12

Date: 11 Apr 1994 00:49:35 GMT
From: ihnp4.ucsd.edu!agate!library.ucla.edu!europa.eng.gtefsd.com!emory!news-
feed-2.peachnet.edu!concert!bigblue.oit.unc.edu!samba.oit.unc.edu!not-for-
mail@network.ucsd.edu
Subject: question: DTMF squelch for non-DTMF squelch machines?
To: info-hams@ucsd.edu

I was wondering whether I can put a device that does the job of a dtmf squelch
to my portable icom 2gat which is not equiped with that feature built-in;

I don't care if the device is external or bulky;

It will be used to clear out ennoying repeater signals that comne
from other persons, I don't care to listen to...

ANY info will be appreciated !!!

please reply by personal email to:

dpalli@leon.nrcps.ariadne-t.gr

Jim

--

Date: 11 Apr 94 08:17:31 GMT
From: news-mail-gateway@ucsd.edu
Subject: SAREX Keps 4/11/94 at 8:00 UTC
To: info-hams@ucsd.edu

SB SAREX @ AMSAT $STS-59.010
SAREX Keps Update 4/11 at 8:00 UTC

Greenbelt, MD, 4/11/94 at 8:00 UTC

The official SAREX element set for this morning will be GSFC-005. This element sent was generated by Ron Parise, WA4SIR, of the Goddard Space Flight Center. Gil Carman, WA5NOM, reports that the predictions using GSFC-005 are closer to the real-time Orbiter state vector than GSFC-007 or JSC-009.

STS-59
```
 1 23042U 94020A   94 99.70643805 0.00018312  11043-4  10773-4 0    58
 2 23042  56.9974 262.7245 0009489 267.3550  92.6453 16.20229092    67
```

```
 Satellite: STS-59
 Catalog number: 23042
 Epoch time:      94099.70643805         (09 APR 94   16:57:16.25 UTC)
 Element set:     GSFC-005
 Inclination:       56.9974 deg
 RA of node:       262.7245 deg          Space Shuttle Flight STS-59
 Eccentricity:    0.0009489                  Keplerian Elements
 Arg of perigee:   267.3550 deg
 Mean anomaly:      92.6453 deg
 Mean motion:   16.20229092 rev/day      Semi-major Axis: 6597.0622 Km
 Decay rate:       0.18E-03 rev/day*2    Apogee  Alt:        224.93 Km
 Epoch rev:               5              Perigee Alt:        212.41 Km


 NOTE - This element set is based on NORAD element set # 005.
        The spacecraft has been propagated to the next ascending
        node, and the orbit number has been adjusted to bring it
```

into agreement with the NASA numbering convention.

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

/EX

Date: Mon, 11 Apr 1994 05:38:06 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!caen!malgudi.oar.net!witch!ted!
mjsilva@network.ucsd.edu
Subject: We wish you best 73's
To: info-hams@ucsd.edu

In article <Co0Cqn.MMM@eskimo.com>, Bill Turner (wrt@eskimo.com) writes:
>In article <2o42ok$8j1@oak.oakland.edu>,
>prvalko <prvalko@vela.acs.oakland.edu> wrote:
>>
>>hahahahaha
>>
>>Heard on the repeater, "You are full scale but really noisy."
>>
>>=paul= wb8zjl
>>
>
>
>What's so odd about that? Are you confusing full scale with full
>quieting? I've heard plenty of S9+ signals that were so noisy I could
>hardly copy....
>

It's not odd, but it does illustrate a common misunderstanding
regarding repeaters, which is that the signal strength your meter
reports is that of the repeater transmitter, not the transmitter on
the repeater input. You can't give someone a signal report based on
your meter, you can only give the repeater a signal report.

Mike, KK6GM

Date: Mon, 11 Apr 1994 01:46:59 GMT
From: news.Hawaii.Edu!uhunix3.uhcc.Hawaii.Edu!jherman@ames.arpa
Subject: WWV/H's Antennas
To: info-hams@ucsd.edu

In article <Co0CFB.MD5@eskimo.com> wrt@eskimo.com (Bill Turner) writes:
>In article <Cny5tz.4A3@news.hawaii.edu>,
>Jeffrey Herman <jherman@uhunix3.uhcc.Hawaii.Edu> wrote:
>>Someone was kind enought to provide a copy of the (old) NBS information
>>pamphlet. It was very interesting, but I found the following a bit
>>suprising:
>>
>>
>>>   1b. Antennas and Modulation
>>>   The broadcasts on 5, 10, and 15 MHz from WWVH are from phased
>>>vertical half-wave dipole arrays. They are designed and oriented
>>>to radiate a cardioid pattern directing maximum gain in a westerly
>>>direction. The 2.5 MHz antenna at WWVH and all antennas at WWV are
>>>half-wave dipoles that radiate omnidirectional patterns.
>>
>>
>>For such an an elaborate installation and because of the vital service
>>they provide I would have expected NBS to use antennas more
>sophisticated
>>than dipoles; there certainly are antennas with more gain which would
>>give the same radiation patterns.
>>
>>Gary? Al?
>>
>>Jeff NH6IL
>>
>
>
>I think you are forgetting WWV's mission: they are not out to work DX,
>they are trying to provide the maximum coverage to the maximum number of
>people. For this, a half-wave vertical dipole is an excellent antenna.
>It has a mix of high and low angle radiation and everything in between.
>It's the same reason you wouldn't use a beam while conducting a local
>net - you need to talk to everybody. A certain amount of phasing has
>been used probably to overcome their location at the foot of the
>Rockies (just a guess).
>
>Incidentally, there is no such thing as an "antenna with more gain which
>would give the same radiation pattern". Can't happen. Antenna gain is
>created by intentionally distorting the radiation pattern and/or angle
>in the favored direction. You can't get something for nothing.
>
>
>Bill, W7LZP
>

Ken, in a previous article, summed up what I wasn't not able to state.
We certainly all agree that WWV's mission is to `reach out and touch

everyone [tm]'. The example I keep falling back on is the VHF 1/4 wave vs. 5/8 wave gp - both have the same omnidirectional pattern (looking down from above) but the 5/8 `compresses' the radiation, thus resulting in `gain' over the 1/4 wave gp.

So why doesn't WWV use, say, stacked half-wave antennas? Are there physical limitations in doing this at HF?

Jeff NH6IL

Date: Mon, 11 Apr 1994 01:29:38 GMT
From: news.Hawaii.Edu!uhunix3.uhcc.Hawaii.Edu!jherman@ames.arpa
Subject: WWV Antennas
To: info-hams@ucsd.edu

In article <940410130354_1@ccm.hf.intel.com> Cecil_A_Moore@ccm.CH.INTel.COM (Cecil A Moore) writes:
>
>Text item: Text_1
>
>> But WWV is using just vertical dipoles (not phased, as with WWVH). There
>> are certainly higher gain antennas than a dipole that will still retain
>> an omnidirectional `orientation'. Jeff NH6IL
>
>Hello again, Jeff. My point is that one cannot change the gain of an
>antenna system without changing the radiation pattern. In that
>process, while Hawaii may enjoy an increase in signal level,
>Arizona may suffer a decrease in signal level. Who's going to
>be forced to suffer because of the antenna system change?

Cecil: Compare a 1/4 wave ground plane to a 5/8 wave gp: both have omnidirectional patterns but the 5/8 wave gives you a lower angle of radiation, providing a certain `gain' over the 1/4 wave gp.

WWV wants omnidirectional coverage; there are antennas that would give a lower take-off angle than a vertical dipole and still provide this coverage. Right?

Jeff NH6IL

Date: 11 Apr 1994 04:50:39 GMT
From: usc!howland.reston.ans.net!europa.eng.gtefsd.com!news.umbc.edu!eff!news.kei.com!yeshua.marcam.com!zip.eecs.umich.edu!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!cyber2.@@ihnp4.ucsd.edu

Subject: WWV Antennas
To: info-hams@ucsd.edu

Ken A. Nishimura (kennish@kabuki.EECS.Berkeley.EDU) wrote:

: However, there is another way to concentrate power, which
: is what most FM broadcast stations do. Ken

But FM is ground wave and we are talking about WWV HF signals bouncing.
Doing *anything* to increase the signal strength in one location will
decrease the signal strength somewhere else at 10 MHz.

73, Cecil, kg7bk@indirect.com

Date: 11 Apr 1994 04:43:47 GMT
From: ihnp4.ucsd.edu!usc!crash!news.sprintlink.net!indirect.com!
kg7bk@network.ucsd.edu
Subject: WWV Antennas
To: info-hams@ucsd.edu

Jeffrey Herman (jherman@uhunix3.uhcc.Hawaii.Edu) wrote:

: WWV wants omnidirectional coverage; there are antennas that would
: give a lower take-off angle than a vertical dipole and still provide
: this coverage. Right? Jeff NH6IL

No! No! No! WWV does not want so low an angle of radiation that they
cannot be heard in Nevada. Your discussion is assuming line-of-sight
(ground wave) propagation. If you lower your angle of radiation on
HF you will skip over a location that previously could hear you. Why
can't I work Tucson from Phoenix on 10m? My ground wave is not strong
enough to reach there and it's too short a distance for the first hop.

It seems to me that WWV would want the first hop to correspond to the
fading out of the ground wave and want to be radiating a wide enough
vertical angle that the end of the first hop corresponds to the
beginning of the second hop, etc... for widest coverage.

Wherever the first skip hits on 10MHz WWV presently, if you lowered the
angle of radiation by increasing the gain of the antenna, that location
would lose WWV signal strength. The only way to increase WWV signal
strength at all locations is by increasing transmitter power.

73, Cecil, kg7bk@indirect.com

End of Info-Hams Digest V94 #402
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